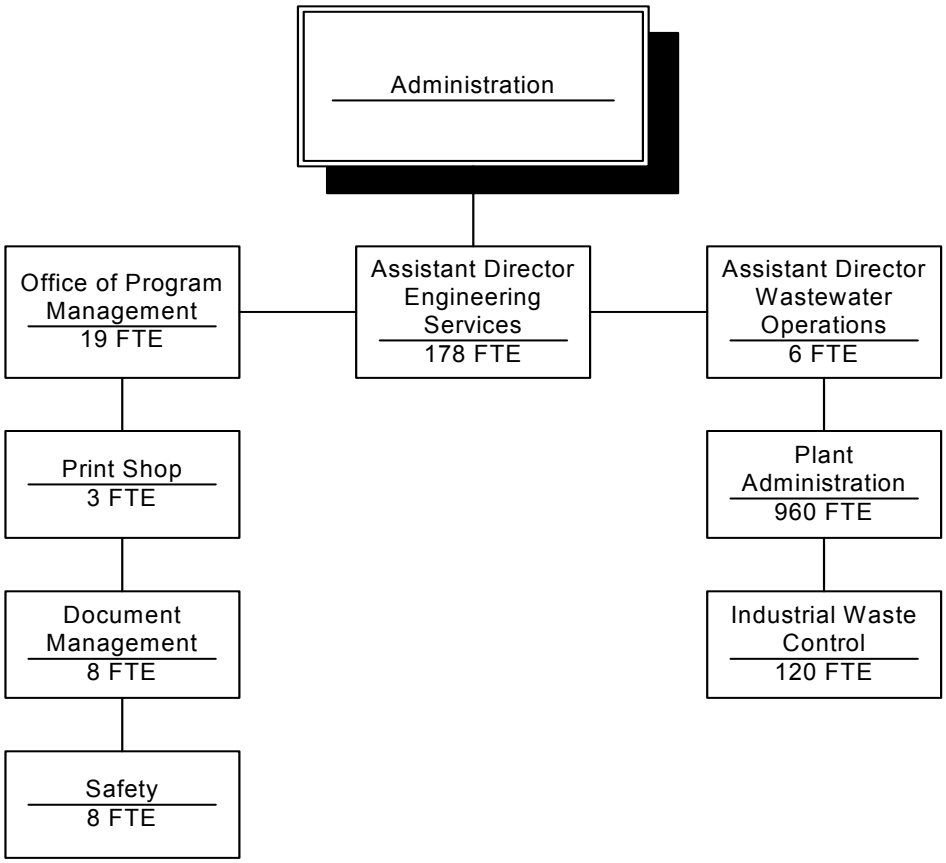
SEWERAGE



SEWERAGE

AGENCY MISSION

The Water and Sewerage Department will exceed our customers' expectations through the innovative treatment and transmission of water and wastewater that promote healthy communities and economic growth.

Sewage Disposal System Goals

1. To implement the policies of the Board, Charter requirements and Federal mandates for supplying water and sewerage services.
2. To provide an adequate level of trained personnel to operate the water and sewerage systems.
3. To inform the public of agency operations, especially with regard to sewerage operations.
4. To obtain timely approvals of grant amendments and/or loan applications from State and Federal agencies.

CURRENT FACILITIES

Sewage Disposal System

The Sewage Disposal System is administratively part of DWSD, but maintained as a separate fund in the City of Detroit Accounting System. DWSD operates one wastewater treatment plant which is located at 9300 W. Jefferson. This facility serves approximately 2.9 million people in Detroit and seventy-seven other communities in southeastern Michigan. DWSD's sewer system originated in 1836, and today consists of 14 pump stations, three storm water detention basins and a total of 3,000 miles of sewer lines that carry rainwater and wastewater to the Wastewater Treatment Plant – the largest single-site wastewater treatment facility in the country.

The plant has the capacity to treat a maximum flow of 859 million gallons per day (mgd) of sanitary sewerage and a capacity to treat up to 1,520 mgd of a combination of sanitary and storm flow while consistently meeting or exceeding permit requirements for effluent quality. The plant also produces approximately 1,000,000 wet tons of wastewater residuals each year which are either incinerated in compliance with applicable air pollution control laws or transported to commercially operated landfills in western Wayne and Macomb Counties.

FIVE YEAR HISTORY

Fiscal Year 2002-03

Plant-wide Roof Repair & Replacement $6,789,328

This project involved the repair and replacement of leaking, damaged, or deteriorating roofs and roofing systems throughout the department to bring them up to standard. The work involved the removal and replacement of roof build-up, roofing materials, and shingle type roofs. The materials removed included flashings, expansion joints, coping, and other materials. This project also involved developing a system for routine maintenance of the roofs based on life expectancy.

Sewage Metering - Primary Measuring Device Improvements - Group No. 2 $2,177,797

This project involved rehabilitation and equipment replacement at four sewage-metering facilities to bring them up to the department's standards. The work involved removing and installing a new open cut channel flow metering system at the DRP-S-1 metering facility site, and replacing the existing magnetic flow metering system at Meter Pit AP-S-2, Meter Pit DN-S-4 and Meter Pit DN-S-5. Transducers, controllers, instrumentations, software, transmitter cabinets, and flushing water vaults were included in the new open channel flow metering system and recording instruments, piping, sump pumps, new lighting systems, knife gate valves, meter cabinets, and

appurtenances in the magnetic flow metering system. Meter Pit DN-S-4 also included manholes.

These four metering facilities are located in Detroit, Allen Park, and Dearborn. The equipment replaced included metering devices, ventilation equipment, lights, remote telemetering equipment, and all associated wiring and devices. Other work included cleaning and waterproofing the meter pits, and installing flushing water vaults.

Suburban Sewage Primary Measuring Devices Improvements-Group No. 1 $1,715,930

This project involved the rehabilitation of suburban sewage metering facilities in Centerline, Sterling Heights, Rochester and Dearborn, and two facilities at the Mistersky Power Plant. Consultant services provided under this project involved the selection of Supervisory Control and Data Acquisition (SCADA) equipment. The SCADA equipment was installed at each of the metering facilities to provide DWSD with accurate information on sewage inflow and customer usage. A post rehabilitation analysis was performed in which the consultant compared the flow data of the SCADA equipment to the flow measuring equipment used during the study. The consultant also performed the necessary work for the preparation of contract documents.

Fairview Station Rehabilitation $7,170.260

This project involved the replacement of the Fairview Pumping Station No. 2 pumping unit. This unit was replaced with a new 72-million gallon per day (mgd) pump. The pump replacement included the piping connections, drive shaft, motor, LCI variable frequency control, isolation transformer, full speed bypass starter, and architectural rehabilitation. The work completed during this project included building walls; installing windows, doors, and ventilation louvers; replacing the roof and a compressed air system; painting the interior; and, removing asbestos insulated piping and a buried fuel oil tank.

Computer Assisted Mapping – Detroit $2,843,127

This project involved the conversion of 830 Detroit Water & Sewage (DWSD) Section Maps (657 of which were sewer section maps) to computerized digital files before further deterioration of the hard copies occurred. The work included the creation of skeletal databases for the maps and sewers pipes smaller than 24-inches in diameter. Converting the data required collecting 44,600 segments of sewer pipe including the size, material, date installed, and location of the pipe and linking the data to the corresponding segment of pipe in the database. Work also included entering all field book index cards for the City of Detroit and Suburban communities into the database, setting up a Modular Geographic Information Systems Environment GeoData Manager database, and providing data entry training to DWSD's Geographic Information System staff and other staff members responsible for linking the database to the maps.

Work was done using a phased approach, in which work was initiated on the most frequently used maps, while building the capability for subsequent phases to enlarge the database, intelligence, operating system modeling, graphics, and other applications needed. This Project was financed jointly by the Water Supply System and the Sewage Disposal System.

Pickle Liquor Spill Containment $1,113,218

This project involved the installation of a secondary containment for four pickle liquor pump tanks, which is required by State and Federal Regulations. The work involved excavating the area between the two sets of pickle liquor tanks and installing concrete floors and walls. Other installations included steel grating floors at the surface, steel walls around the four tanks, two storm water sump pumps, and a pickle liquor sump pump. These installations will create a containment area in case of spillage, rupture, or deterioration of the tanks and provide a means to remove any rainwater that may fall into the excavation area. The work also included painting the tanks, floor, walls, and piping to meet the City of Detroit Code Requirements for proper labeling.

Work completed under change orders included, but was not limited to: coring 10 four-inch diameter holes in the existing concrete slabs of the rectangular pickle tank, demolishing concrete, repairing spall, installing two stainless steel access ladders in the containment area, and installing a 12-inch thick concrete wall at an elevation of 108-feet.

Plant-wide Renovation of Hydraulic Structures $7,262,167

This project involved rehabilitation and replacement of hydraulic structures at the WWTP necessary to handle the increased flow anticipated with the installation of Pump Station No. 2. Hydraulic structure renovation involved constructing control gates consisting of four roller gates, two new stop log gates, and two sluice gates; constructing a sampling station, a stop log storage structure, and eight slots for stop logs; rehabilitating twelve sluice gates and twenty-two stop logs; and converting six sluice gates into two slide gates and four stop logs. The control gates regulate the flow and water levels in the primary treatment system, secondary treatment system, and the junction chamber to meet the hydraulic and permit requirements for the Detroit River Outfall.

Work also included demolishing Movable Dams 3 and 4 and installing new movable dam structures downstream; demolishing and removing deteriorated reinforced steel; sealing the area with 2-inches of granite; repairing deteriorated ceilings and removing 2-inches of unsound concrete; and capping the old concrete surface with at least 2-inches of high strength cementitious material using the gunite technique. The construction of the Movable Dams required the demolition of two conduits, which carried primary flow to the Zug Island Outfall.

Improvements to the system were needed to provide operational flexibility, work efficiency throughout the WWTP, a safe working environment, and Operation and Maintenance cost savings.

Belle Isle Main Pumping Station Improvements $2,032,695

This project involved making the necessary improvements to the Belle Isle Pumping station and related site structures to bring them up to Building Code Requirements. This project involved architectural, mechanical, and electrical work on the existing structures at the Belle Isle Pumping Station. Demolition was done on a selective basis and asbestos-containing materials were removed from the structure. Site alterations and rehabilitation work were also performed. Repairs were performed on roofs, stairs, and ventilation and heating. Sites included in the work were a small office, a transformer building, an underground pumping station of 1,700

square feet, and two open wet wells. Miscellaneous site work of finish grinding, seeding, and concrete walk paving was also done.

Design/Build/Maintain Contract for Emergency Generators $26,080,290
This project involved the purchase of 44 emergency generators (15 for sewage facilities) after Detroit Energy (DTE) announced that the provision of power could not be guaranteed with the coming of the Year 2000 (Y2K). The generators were procured to provide electrical power and maintain services to critical water and sewage system operations after Y2K. The generators will be further utilized as backup for any emergencies. Legal Services were procured to ensure that DWSD would not be in violation of the US Tax Code or jeopardize their tax-exempt status by using the generators to ease power usage during DTEs peak times, which would benefit a non-government entity. This Project was financed jointly by the Water Supply System and the Sewage Disposal System.

Fiscal Year 2001-02

Hubbell/Southfield Combined Sewer Overflow Detention Facility $63,627,018
This project involved the construction of a detention facility/basin to treat and store untreated sewage feeding from the Hubbell and Southfield sewers. The construction of this facility is one of three to be constructed as a part of the Rouge Valley Phase II Combined Sewer Overflow Control (CSO) Facilities. Together, the three facilities will be treating and storing untreated sewage from the west side of the city covering an area of 15,570 acres. This sewage, during wet weather events, was being discharged through five outfalls to the Rouge River.

Work completed under this contract included motorizing the bridge movement of the overhead crane, excavation, modifying the precast tees and supporting beams designed to support 500 pounds per square feet, installing three Direct Operating Panels to the facility's control system, eliminating the disconnect switch, increasing the wire and conduit sizes of the 20HP and 40HP mixer motors, installing a two-wire control system, installing and connecting a new relay panel, extending the Influent and Basin #2 roller gates, installing and backfilling a 4-foot diameter precast concrete manhole, and other related work.

Wade-Trim Associates, Inc. was responsible for providing all Construction Management Services throughout the construction of these basins. This included coordinating the entire construction of the Rouge River Retention Basin Facility to minimize duplication. Wade-Trim was also responsible for providing engineering staff from varying disciplines. Legal services were also provided during the construction phase of this project.

Renovation of Primary Tanks Nos. 1, 2, 3, 4, 11, and 12 $11,951,783
This project involved the removal and replacement of 42 main collectors from 6 cross collectors - rectangular tanks nos. 1, 2, 3, 4, 11, and 12. This project restored the normal primary treatment capacities by rehabilitating deteriorated equipment. The driving unit's concrete slabs to each of the main collectors was removed and replaced. Renovation was completed on ten 12-inch and two 16-inch drain valves at six manholes. Other work included the cleaning of tanks, securing the tanks from flooding, repairing concrete cracks and spalled concrete, cleaning and painting 1,130-ft length of weir troughs, and replacing 64-speed reducers with motors and pivot bases for the six tanks and two additional tanks. The repaired cracked

concrete was completed on 27,000 feet of concrete and the spalled concrete was completed on 3,500 sq. ft of concrete. The eight tanks also received replacement switches, starters, and limit switches.

Sewage Metering Facilities - Primary Measuring Device Improvements Group 4 $1,196,160

This project involved the rehabilitation of 3 of the 37 suburban sewage meter pit facilities. The three metering sites included Metering Facility ST-S-1, Metering Facility ST-S-2, and Metering Facility ST-S-4. Rehabilitation involved the replacement and addition of equipment to standardize the Department's sewage metering facilities. The equipment included metering devices, ventilation equipment, lights, remote telemetering equipment, radios and all associated wiring and devices. This contract also included cleaning and waterproofing the meter pits and installing flushing water vaults.

8' Diameter Frisbee Road Interceptor $2,743,355

This project involved extending the Sewer Interceptor located between Frisbee Avenue and 7 Mile Road. This extension was needed for transporting flow into the 7 Mile Road Combined Sewer Outfall (CSO) Basin. Also, a sewer meter was installed in the Frisbee sewer and modifications were made to the existing flow monitoring system at the CSO basin.

The work consisted of the installation of an 8-foot precast concrete sewer pipe, which connected the Frisbee interceptor to the 7-Mile detention basin. The pipe was installed in the right of way of Frisbee Avenue, Appleton Avenue, Verdun, and Shiawassee Avenue, which will allow for conveying wet weather flow from the interceptor sewer to the CSO basin. Approximately 1,624 linear feet of concrete pipe was installed as well as a reinforced concrete flow diversion chamber. The diversion chamber was installed within the existing interceptor. A reinforced concrete bulkhead was also installed at the backwater gate at the existing sewer outfall. An electronic flow monitoring system was installed at the CSO detention basin building and also in the right of way of Frisbee Avenue, Appleton Avenue, Verdun, and Shiawassee Avenue.

Other work included raising a section of depressed roadway along Shiawassee Avenue including the installation fill and soil erosion control materials and the construction of a new concrete pavement. A 26-foot wide non-reinforced roadway was built. The work required filling, grading, and compacting approximately 745 feet of depressed roadway along Shiawassee Avenue from the CSO Detention Basin Building to Verdun Avenue. The 26-foot roadway included integral curbs, fencing, and guardrailing.

Wastewater Collection System Improvements - In-system Storage $4,991,896

This project involved the modification of in-system storage devices and other related structures for seven of the Combined Sewer Outfall structures. The work involved under this contract included, but was not limited to, the construction of slide gate facilities, the removal of existing back water gates, and construction of control buildings. Other work included rehabilitation of existing structures, site improvements, and associated mechanical, electrical, instrumentation and control work. To maximize the in-system storage during wet-weather events, a hydraulic structure for a totally enclosed hydraulic actuator was constructed within the wastewater collection system. The construction was also

completed for inflatable dams at seven sites within the collection system.

This project was part of a multiple tasked project initiated to fulfill NPDES permit requirements. Each task underwent value-engineering reviews, which was a requirement for grant funding. Services were also provided during the MDEQ review and approval process related to the implementation of the Preferred Plan.

Fiscal Year 2000-01

Seven Mile Combined Sewer Overflow Detention Facility $21,469,283

This project involved the construction of an underground reinforced concrete detention facility between Shiawassee and Berg Road near Seven Mile Road for the purpose of eliminating raw sewage discharge and public health protection. Approximately six acres of property was purchased for this facility. The facilities basin was constructed with a 2.2 million gallon capacity and included approximately 975-linear feet of 9-foot diameter influent sewers. Installations done under this project included a fiberglass reinforced plastic handrail at an elevation of 12-inches, a 12-inch thick wall between shunt and effluent channels, a two-wire control system between the motor actuators and the MCP connect basins, explosion-proof unit heaters and thermostats, two remote control systems for the control building's overhead doors 1-1 and 113B and associated conduit wiring, two 20-amp circuit breakers in lighting panel LP-C to supply 120 volts of power to overhead doors 101 and 102.

Other work completed under this project included modifying wet walls and the basin odor control system, relocating regulating channels thirty (30) feet south of the Seven Mile right of way, connecting the basin's 6-inch diameter sanitary waste line to an existing manhole in the middle of Shiawassee Avenue and providing a second weather seal on the inside leg of the angle guides door jambs.

Puritan/Fenkell Combined Sewer Overflow Detention Facility $21,023,547

This project involved the construction of a 2.8 million gallon CSO detention facility at Puritan and Fenkell for the purpose of reducing direct discharge of untreated sewage into the Rouge River. The basin was constructed below ground of reinforced concrete with approximately 3,200 linear feet of 12-foot diameter influent sewer. Quality control tests were performed on a 12-foot diameter pre-cast concrete influent pipe. Modifications and additions were made with fiberglass reinforced plastic handrails, platforms and stairways.

Installation also included a gate valve and well within the 8-inch water main, a two-wire control system linking the electric motor actuators directly to the Rotork Master Station, bituminous pavement over gravel the road at Redford Cemetery, two direct operating panels to the facility's control system, underground utilities, and additional reinforced concrete storm sewer piping.

Other work included replacing thermostats and unit heaters with ones that are explosion proof, increasing the width of the west wall of the headworks room to 112-inches X 4-inches, and relocating parking areas. The consultant also completed a full forensic review of each basin's structural integrity following the collapse of the roof.

Suburban Sewage Meter Pit Rehabilitation $2,150,789

This project involved the refurbishment of a master sewer meter in Shelby Township. Work included the replacement of obsolete

and unreliable meter pit equipment at 16 meter pit sites in order to standardize all metering systems and the installation of a water main. The equipment included metering devices, ventilation equipment, lights, remote telemetry equipment, radios, and all associated wiring and devices.

Other work completed under this project included waterproofing of the meter pits, the demolition of flushing water vaults, lighting and recording facilities. Work further included installing new flushing water vaults and recording facilities.

Inspection & In-place Rehabilitation of Circular and Non-circular Sewer $7,349,144

This project involved the consultants providing as-needed inspection and in-place rehabilitation of selected sewers using the procedures, methods, and equipment of the cured-in-place pipe process, a process that minimizes traffic disturbance and is considerably more inexpensive than the customary procedure. The process used required all flows to be maintained during the installation and reestablishment of all sewer connections. Slip lining was installed on an existing 48-inch water main on Elizabeth, Witherell and Park Avenue. This main was relocated from Witherell to St. Antoine to facilitate the construction of the new stadiums. Rehabilitation of existing infrastructures was performed on an emergency basis to address deteriorating and/or near collapsing sewer systems. Other tasks performed included the cleaning of sewers, television inspection of liners and site clean up.

Construction Management Services for Overhaul of Major Pumping Equipment $4,274,999

This project involved Best American Industrial Services providing construction management services to oversee the repair of equipment at the five water treatment plants, the twenty unmanned water booster stations, and the fourteen unmanned sewage pumping stations. The contractor solicited proposals from specialized service contractors, analyzed the competitive bids and made recommendations for bid award. They further provided skilled trade services for the procurement of equipment and materials for the additional pumping equipment rebuilding service and for other related tasks as requested by the project engineer.

The contractor also conducted regular progress meeting to review procedures, schedules and process problems. They also monitored accounting and costing and any variance in budget and cost were reported to project engineer.

Lateral Sewer Replacement Bounded by Woodingham/ 8 Mile, Santa Barbara/ Pembroke $1,752,594

This project involved the replacement of deteriorating or impaired sewers in the area bounded by Woodingham, Eight Mile, Santa Barbara and Pembroke. The sewers in this area were replaced with I.D. sewer pipes and consisted of 1,083-lateral feet of 12-inch sewer pipe, 674-lateral feet of 15-inch sewer pipe, 979-lateral feet of 18-inch sewer pipe, 847-lateral feet of 21-inch sewer pipe, 775-lateral feet of 24-inch sewer pipe and 1200-lateral feet of 30-inch lateral sewer pipe.

Lateral Sewer Replacement – Palmer Woods Area $ 1,049,396

This project involved the installation of new lateral sewers in the Palmer Woods area. The new sewers consisted of 13,500-linear feet of lateral sewers, which included sizes from 12-inches to 36-inches in diameter and were installed at a 10-feet depth. Construction also included all sewer

appurtenances, connections, the televising of existing sewer surface restorations and any other related work.

Fiscal Year 1999-2000

Southfield Sewer Rehabilitation $18,242,091

This project involved the construction of approximately 3, 700 linear feet of 10' diameter bypass sewer tunnel between Warren and Kirkwood Avenues. This bypass sewer tunnel replaced the original sewer located under the Southfield Expressway between Paul Street and Kirkwood Avenue, south of Warren Avenue, which was found to be so distressed during the walk through inspection that it was backfilled and abandoned. Further work included the installation of shotcrete lining through a temporarily braced section of sewer at Dover Avenue and the construction of an equipment access shaft. The existing Southfield Sewer Lining between Schoolcraft Avenue and Joy Road was also patched and an equipment access/flow control structure was constructed at Plymouth Road.

Removal, Remediation, and Installation of Underground Storage Tanks $430,877

This project involved the removal of eight underground storage tanks at Lake Huron Plant, Water Works Park, Springwells, Ford Road Station, Wastewater Treatment Plant, and Southwest Water Plant, with associated site clean-up and required disposal of contaminated soil and preparation of necessary regulatory reports. The work further involved the installation on nine new underground storage tanks with associated appurtenant systems, piping, leak detection, fuel dispensing and control systems. This project was initiated and completed to comply with federal underground storage tank regulations and the State of Michigan Underground Storage Tank Regulatory Act (PA423).

Change orders one and two involved the removal and disposal of 1440 cubic yards of contaminated soil, contaminated water removal and disposal, and asphalt and concrete paving at the sites. It also provided for additional professional environmental services as mandate by the Michigan Department of Natural Resources.

Centralized Air Compressor Facility – WWTP $3,958,438

This project involved the construction of a steel building approximately 46' x 53' x 25' high on a pile supported concrete foundation including adjacent exterior sewer and pavement work. Work completed during this project included the installation of four 2 1/2" diameter conduits from the motor starters in the switch house to the central air compressor building totaling 2120 feet. It also included installation of an 18" x 12" Catch Basin in the new concrete pavement, installation of two 6" diameter and 6' long Bollards with 3/4" x 9" x 9" plate welded at the bottom and filled with concrete to protect the compressors, and installation of 3" gate valves in the existing secondary water line.

Other work included rerouting a 4" PVC drain pipe and two 1/2" copper water supply lines, removal of a 10CB21 beam and installation of a new beam, repairing leaks in two 8" underground Ash lines of the West Ash System in Complex I. The Motor Control Center was relocated from the Electrical Building to the primary influent pumps. Windows were modified by installing corrugated metal siding and new matching face brick to window openings at the West and North walls of the chemical building and the filer building.

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Southfield Sewer Investigation $4,609,522
This project involved a joint venture of Walbridge Aldinger and NTH Consultants providing all construction management and engineering services necessary to plan, coordinate and execute a comprehensive, walk-through inspection of the entire length of the Southfield sewer and the Hubbell-Southfield outlet sewer. The total sewer footage inspected was approximately 10.5 miles with the vast majority, approximately 8 miles, located directly beneath the Southfield Expressway traffic lanes.

This project was divided into two phases. Phase I, comprised the planning stage where all activities and construction items, which were required to implement the inspection, were determined. Phase II included the preparation of contract documents for the construction of all flow control structures and modifications, and the actual performance of the walk-through inspection.

Fiscal Year 1998-99

Computer Assisted Mapping – Suburban-Phase I $1,052,000
This project involved the conversion of several sections of DWSD from map usage to a Digital Computer Graphics System. The conversion connected features of the system to a skeletal database conforming to the City's effort of standardizing computer platforms, software, and databases, which permitted the sharing of information and the stabilization of efficient satisfactorily working conditions. In addition, Master Meter Drawings, Gate Book sheets, Pressure Reducing Valves, and Wastewater Control Facility drawings were scanned and indexed to preserve information before further deterioration occurred. This Project was financed jointly by the Water Supply System and the Sewage Disposal System.

Sewer System Improvements for American Axle in Holbrook-Russell to St. Aubin $72,959
This project involved the replacement of an existing sewer located in Holbrook-Russell to St. Aubin. Replacement included approximately 1,450 linear feet of open cut sewer pipe varying in size from 12 to 32-inches in diameter. It also included all appurtenances and related structures.

Eastside Customer Service Center $271,000
This project involved the purchase of land and building at 13297-13301 E. McNichols for use as an East Side Customer Service Center. DWSD previously leased space in the building. The purchase was necessitated when the owner, Detroit Edison, decided to sell the property. The building is a 12,000 square foot one-story structure with brick façade, metal roof overhang and a flat composition deck with a tar and gravel roof. The adjacent parking area accommodates approximately fifty vehicles.

The appropriate DWSD Engineering Section inspected all mechanical and electrical systems. As a result, new HVAC units were installed. NTH Consultants, Ltd. conducted a Level I environmental assessment and determined that the property contained no environmental problems or concerns. This project was financed jointly by the Water Supply System and the Sewage Disposal System.

Oakwood Sewage Pumping Station Improvements $5,911,000
This project involved the rehabilitation of the electrical system, pump motors and accessories, oil removal system, HVAC System and other miscellaneous improvements to the Oakwood Sewage Pumping Station.

The work involved the removal of the existing 4800 volt switchgear and high voltage wiring in the pump motors in the Switch House Switch House and the installation of a new 4800 volt, split bus power distribution system including new circuit breakers and automatic transformer system, new motor starters with controls and wiring, and new 240 volt transformers.

A new motor control center was also installed which included new wiring, a new main control monitoring and alarm panel including instrumentation and wiring. The work also consisted of the installation of two new tube oil skimmers, one transfer pump and connections to the existing 4,000 gallon underground storage tank; the installation of a new duplex pump and piping, site work improvements including a new boiler, three steam fired and two electric unit heaters.

Various structural improvements, including replacing two spiral stairways, architectural improvements to both structures including the roof, office area, toilet, windows, doors, brick work and cleaning concrete and brick masonry surfaces were also completed in this project.

Renovation of Primary Tanks 3, 4, 5, & 6 $2,849,000

This project involved removing fourteen main collectors and two cross collectors which consisted of approximately 17,000 linear feet of metal and non-metal collector chain, drive motors, speed reducers, motor starters, disconnect switches, and other components. Work also consisted of cleaning the tanks, preventing flooding, repairing approximately 8,000 linear feet of concrete cracks and repairing approximately four hundred square feet of concrete spall.

The project also involved the contractor furnishing and installing fourteen new main collectors and two cross collectors, painting two hundred fifty linear feet of weir trough; providing, installing and setting anchors and hanging hardware; demolishing the existing building; removing and disposing of asbestos containing materials; furnishing spare parts; commissioning the equipment; and finally, restoring the work site.

Rouge River Outfall Hydraulic Control & Monitoring Facilities $4,491,000

This project involved the construction of new Hydraulic Control & Monitoring Facilities in Rouge River Outfall at the Wastewater Treatment Plant. Work consisted of demolition of existing sections of the Rouge River Outfall Conduit, demolition of gates and appurtenance equipment at the site of Movable Dam No. 1 and 2 and demolition of the sampling station. The project also involved the construction of four new roller gates, eight stop log slots, four stop logs and a new sampling station.

Work completed under change orders involved the removal of approximately 4,500 cubic yards - tons of sludge, which was discovered when the top of the Rouge River Outfall Conduit was demolished. The contractor also provided and installed one 480-120 volt 2KVA transformer inside each of three L.T.C. Cabinets with two primary fuses for each transformer and one secondary circuit breaker (15 Amp) for each connection. Fifty-four bumper posts at the movable dams and the roller gate structure were also installed. A new reinforced concrete wall south of the new Movable Dam No. 2 was constructed. The contractor also had to locate the power cable encased in the roof slab of the outfall and connect it to a new handhole on the South side of the Roller Gate Structure.

Modification at NI-EA and 7 Mile Relief Sewer Connection $2,163,000

This project involved the construction of a cast-in-place concrete stop gate and access

structure over the existing 12-foot inside diameter NI-EA sewer on Van Dyke at Seven Mile Road, and the design and construction of a temporary support system to facilitate the building of the structure, demolition of a 21-inch concrete reinforced bulkhead in the 17'6" inside diameter NI-EA sewer and the installation of a new removable bulkhead, installation of sewer and instrumentation equipment for a level sensor in an upstream manhole for flow monitoring, traffic control along Van Dyke Avenue during the project, and the repair of a brick eye at the 12'0" inside diameter portion of NI-EA near Mt. Elliot. Work completed under change orders involved the removal of sludge downstream of the existing bulkhead to facilitate a free flow of water and sludge that would have, if not removed, impeded the flow of the upstream sewer, thereby causing sewage build-up.

Raw Wastewater Pump Station No. 2A $143,714,000

This project involved the construction of a self-sinking 750-mgd raw wastewater pumping station with seven pumps and space for an eighth. The pumping station was constructed as a circular caisson extending to hardpan with an internal diameter of one hundred twenty-six feet. An electrical building, a screening building, and eight grit chambers were constructed adjacent to the pump station. The screening building was constructed with seven mechanically cleaned fan screens and space for an eighth. A polymer and ferric chloride chemical storage and feed system, roadways and parking areas, and new ash storage lagoons were also constructed. Junction chambers and tunnels were built to connect the pump station with the existing flow train at the WWTP. The consultant, Metcalf & Eddy provided the engineering and technical services for the project.

Work completed under change orders included the relocation of the line from the trailer to Primary Sedimentation Tank No. 10 in order that sewer service could be provided while tanks No. 8 and 9 were out of service; the installation of support beams for previously installed landing piles for Pump Station 2A; and, additional excavation and concrete underpinning at the Pump Station 2A.

Emergency Repair to the 15 Mile Road Interceptor

The depression created by the damaged interceptor is approximately 70 feet wide by 250 feet long by 40 feet deep. DWSD did mobilize immediately to stabilize the area and protect the nearby area. DWSD installed two 36" by 1600 feet long by-pass pipes and installed pumps in order to pump the flow around the damaged section of the interceptor. It will take some time to determine the cause and to repair the interceptor.

PROPOSED FIVE YEAR CAPITAL PLAN

The capital improvement program for the Sewage Disposal System (SDS) over the next five years is devoted to replacing, rehabilitating or improving existing process facilities at the Wastewater Treatment Plant; construction or installation of new facilities at the Wastewater Treatment Plant; rehabilitating sewage pumping stations and major sewers; construction of retention basins and other combined sewer overflow (CSO) control measures throughout the combined sewer system; replacement of suburban sewage primary measuring devices; replacing or relining deteriorated lateral sewers in the City of Detroit; installing new sewers or rerouting existing sewers to accommodate new development in the Empowerment Zone and throughout the City of Detroit; automating the meter

reading function; and upgrading the instrumentation and process control equipment for the Wastewater Treatment Plant and the sewage collection system.

The SDS capital improvement program includes a number of projects to replace, rehabilitate or improve aging facilities. At the Wastewater Treatment Plant, such projects include renovation of primary tanks and multiple hearth incinerators, replacement of main and intermediate lift pumps, return activated sludge pumps and belt filter presses, improvements to final clarifiers, the purchase and installation of additional belt filter presses, and other rehabilitation/ improvement projects. Sewage pumping stations scheduled for rehabilitation or improvement include the Conner Creek, Fox Creek, Bluehill, Fischer, Clintondale, and Woodmere Stations. The SDS capital program also includes a program for the relining or replacement of deteriorated lateral sewers in the City of Detroit and the construction or relocation of sewers in areas of the city undergoing redevelopment, such as the Empowerment Zone.

The SDS capital improvement program includes several large projects for the construction of new facilities at the Wastewater Treatment Plant. These projects are the construction of the disinfection facilities, the Detroit River Outfall No. 2, and the construction of new scum handling facilities. It also includes the construction of two new primary clarifiers together with the associated equipment and facilities.

The SDS capital improvement program includes a number of projects mandated by state and federal regulations for the control of combined sewer overflows. Three large CSO retention basins have already been constructed. The Lieb and St. Aubin CSO facilities are nearing completion. Connor Creek and Baby Creek CSO facilities are currently under construction. This category also includes the design and construction of an upper Rouge River tunnel, Belle Isle CSO facility and the Oakwood CSO facility. SDS capital program contains large provisions for the CSO program.

The SDS capital improvement program includes a number of projects to take advantage of technology advances. A project currently underway is the instrumentation, process control and computerization program for the Wastewater Treatment Plant and the sewage collection system. Also planned is the installation and implementation of automatic meter reading systems for the commercial and residential meters, in conjunction with the Water Supply System.

CAPITAL RELATIONSHIPS: INTERDEPARTMENTAL AND KEY STAKEHOLDERS

Detroit Water and Sewerage Department has no current or proposed capital projects requiring input from other City Agencies at this time.

GOALS FOR CAPITAL PROGRAM

Sewer Supply System (42)

1. To provide essential, efficient, and user-friendly services by:
   - A. Continuing the expansion and improvement of the Wastewater Treatment Plant to provide a cost and energy efficient treatment facility that meets all water and air quality standards.
   - B. Continuing to construct facilities for the containment of combined sewer overflows, reducing the number, frequency and magnitude of spills to receiving waters.

C. Continuing to replace and rehabilitate suburban wholesale customer primary measuring devices to more accurately measure and bill for wastewater treatment service provided.
D. Continuing to replace those in-city lateral sewers which require an inordinate amount of maintenance or are of insufficient capacity to service customers.
E. Continuing to construct those interceptor and control facilities needed to adequately service all customers.
F. Continuing to computerize departmental functions to reduce costs and improve operations.

RATIONALE FOR CAPITAL PROGRAM

City Charter charges the Department with the responsibility of supplying water, sewage disposal and drainage services within and outside of the City of Detroit. The Department's water treatment, transmission, and distribution facilities and its sewage collection and treatment facilities must be constructed, improved, maintained and replaced in a manner consistent with proper water and sewerage works practices and must meet standards mandated by the Michigan Department of Environmental Quality, Michigan Department of Public Health, and the Environmental Protection Agency. Moreover, the Department must remain capable of meeting its contractual commitments to its customers.

FIVE-YEAR CAPITAL IMPROVEMENT PROGRAM

PRIMARY TREATMENT-WASTEWATER TREATMENT PLANT

Primary Treatment projects include the construction of two new primary clarifiers, three scum buildings and one sludge pumping station; replacing main lift pumps to restore the total pumping capacity at Pump Station No.1 and equipment reliability; and replacing trough and weirs at the Primary Rectangular Clarifiers. These projects will also provide for a permanent off-loading facility for grit and screenings and rehabilitating exiting primary clarifiers and existing buildings and utilities.

2004-05	$37,501,000	Balances, Cash and/or Revenue Bonds
2005-06	5,165,000	Balances, Cash and/or Revenue Bonds
2006-07	6,000,000	Balances, Cash and/or Revenue Bonds
2007-08	16,000,000	Balances, Cash and/or Revenue Bonds
Unprogrammed	325,000	Balances, Cash and/or Revenue Bonds

SECONDARY TREATMENT-WASTEWATER TREATMENT PLANT

Secondary Treatment projects include improving the secondary clarifiers and aeration decks, improving the reliability of the aeration decks, replacing intermediate lift pumps nos. 1 and 2 and renovating the cryogenic plants. The work involves improving 25 final clarifiers, resealing the aeration decks, improving the work environment, rehabilitating and replacing equipment at the cryogenic plants and other secondary treatment improvements.

2004-05	$37,149,000	Balances, Cash and/or Revenue Bonds

SOLIDS HANDLING-WASTEWATER TREATMENT PLANT

Solids Handling projects involve completely rehabilitating the incinerator burner trains, main stack bypass dampers, Sludge Thickening Complexes A and B, Sludge Storage Tanks 5 and 6, and their associated control buildings and providing a sludge conveyance system and new scum concentrators to process scum. Other work includes reducing the noise of the Induced Draft fan at Incinerator Complex II, rehabilitating the grounds around Complexes A and B, and refurbishing the existing Scum Incinerator Building to house new equipment.

2004-05	$52,129,000	Balances, Cash and/or Revenue Bonds
2005-06	7,943,000	Balances, Cash and/or Revenue Bonds
2007-08	96,000,000	Balances, Cash and/or Revenue Bonds
Unprogrammed	11,969,000	Balances, Cash and/or Revenue Bonds

SEWERAGE

DISINFECTION-WASTEWATER TREATMENT PLANT

Disinfection projects involve constructing a chlorination facility, a decholorination facility, and the second Detroit River Outfall (DRO-2). The chlorination facility will allow for tank car storage and DRO-2 will allow the department to treat an additional flow of 1,820 million gallon per day.

2004-05	$18,670,000	Balances, Cash and/or Revenue Bonds
Unprogrammed	5,320,000	Balances, Cash and/or Revenue Bonds

GENERAL PURPOSE

General Purpose projects involve the removal of hazardous materials, building a data acquisition and control systems, renovating the Old Administration and Ragland buildings, and other work done on an as needed basis including various engineering tasks, roof and pavement repairs and roof replacement. Major work under this category is focused on the necessary study, design, and construction work to bring the WWTP into long-term regulatory compliance. This is being accomplished by using a single oversight contract focused on efficiently meeting these regulatory requirements by completing many smaller projects throughout the WWTP.

2004-05	$221,691,000	Balances, Cash and/or Revenue Bonds
2005-06	11,168,000	Balances, Cash and/or Revenue Bonds
2006-07	4,500,000	Balances, Cash and/or Revenue Bonds
Unprogrammed	9,584,000	Balances, Cash and/or Revenue Bonds

SEWERAGE INTERCEPTOR SYSTEM

Sewer Interceptor projects include designing modifications for the suburban sewage meter pits and modifying sewage metering facilities in Shelby Township, Oakland County, and at the Detroit River Paper Company. Other work involves providing aerial photography, strip and area topographic mapping on an as-needed basis.

2004-05	$ 4,857,000	Balances, Cash and/or Revenue Bonds
2006-07	2,000,000	Balances, Cash and/or Revenue Bonds

COMBINED SEWER SYSTEM

Combined Sewer projects include rehabilitating 58 regulators remote facilities, the Conner Creek Station, the Fox Creek Backwater Gate Building, and the Bluehill Pumping Station; performing equipment survey, testing, calibration; and constructing screening, disinfection, and flow regulation facilities and systems. Other construction includes in-system storage devices, a 120 million gallon per day stormwater pump, and a Combined Sewer Overflow (CSO) detention facility along with a pond. Also included in these projects are the development and implementation of a Long Term CSO Control Program.

2004-05	$360,176,000	Balances, Cash and/or Revenue Bonds
2005-06	197,150,000	Balances, Cash and/or Revenue Bonds
2006-07	26,150,000	Balances, Cash and/or Revenue Bonds
2007-08	711,000,000	Balances, Cash and/or Revenue Bonds

LATERAL SEWER REPLACEMENT

Lateral Sewer Replacement projects include in-place rehabilitation of existing sewers using the trenchless pipeline rehabilitation process, participating in the construction of 6,000 linear feet of water mains on the Jefferies Homes Woodbridge Estates, replacing lateral sewers throughout the City, and other lateral sewer work on an as-needed basis.

2004-05	$37,727,000	Balances, Cash and/or Revenue Bonds
2005-06	20,000,000	Balances, Cash and/or Revenue Bonds
2006-07	10,000,000	Balances, Cash and/or Revenue Bonds
2007-08	3,000,000	Balances, Cash and/or Revenue Bonds

PLANNING AND ADMINISTRATION

Planning and Administration projects include improving technology and administration throughout the department by replacing the existing outdated radios, communication equipment, computer equipment, office furniture, and the DRMS project disk storage system. Other technological improvements include migrating the Work Order Tracking functions for maintenance and repair to the EMPAC system; replacing the Customer Billing Information System, the Automatic Call Directing System, and developing and implementing a Geographical Information System.

2004-05	$180,438,000	Balances, Cash and/or Revenue Bonds
2005-06	3,000,000	Balances, Cash and/or Revenue Bonds
Unprogrammed	21,250,000	Balances, Cash and/or Revenue Bonds

SEWERAGE

Summary of Sewage Disposal System Highest Priority Projects

Project Category	Projected Cost
Primary Treatment - Wastewater Treatment Plant (PT): projects involving rehabilitation/renovations of the primary treatment system	$ 64,621,000
Secondary Treatment - Wastewater Treatment Plant (ST): projects involving rehabilitation/renovations of the secondary treatment system	35,066,000
Solids Handling - Wastewater Treatment Plant (SH): includes various expenditures to meet air quality	154,026,000
Disinfection - Wastewater Treatment Plant (D): projects involving the disinfection facilities at the Detroit/Rouge River outfalls	3,320,000
General Purpose - Wastewater Treatment Plant (GP): includes various design/construction projects benefiting the entire WWTP process	175,668,000
Sewer Interceptor System (SIS): projects relating to the interceptor sewer system	5,500,000
Combined Sewer System (CSS): projects relating to the storage/ discharge/control of the combined storm and sanitary sewage system	1,308,003,000
Lateral Sewer Replacement (LSR): projects relating to the replacement or relining of lateral sewers in the City of Detroit	50,410,000
Planning and Administration (PA): projects relating to the improved management and administration of the Sewage Disposal System	158,462,000
Total Sewerage System Projects - Highest Priorities	**$ 1,955,076,000**

City of Detroit
Proposed Capital Agenda
FY 2005-06 through 2009-10

Sewerage Department

	Project Status	*Timeline*	*Impact on Budget*	*Impact on Staffing*	*Impact on Budget*	*Funding Source*	*Auth Un-issued*	*Budget 2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*	*Un-Program*	*Rec. 5-Year Plan Total*
Primary Treatment (PT)						R.S.		$37,501	$5,165	$6,000	$16,000			$325	$27,165
Secondary Treatment (ST)						R.S.		$37,149							$0
Solids Handling (SH)						R.S.		$52,129	$7,943		$96,000			$11,969	$103,943
Disinfection Facilities (D)						R.S.		$18,670						$5,320	$0
General Purpose (GP)						R.S.		$221,691	$11,168	$4,500				$9,584	$15,668
Sewer Interceptor System (SIS)						R.S.		$4,857		$2,000					$2,000
Combined Sewer System (CSS)						R.S.		$360,176	$197,150	$26,150	$711,000				$934,300
Lateral Sewer Replacement						R.S.		$37,727	$20,000	$10,000	$3,000				$33,000
Planning/Administration (PA)						R.S.		$180,438	$3,000					$21,250	$3,000

Total by Funding Source	***Budget 2004-05***	***2005-06***	***2006-07***	***2007-08***	***2008-09***	***2009-10***	***Un-Program***	***5-Year Total***
R.S.	*$950,338*	*$244,426*	*$48,650*	*$826,000*	*$0*	*$0*	*$48,448*	*$1,119,076*

Total by Agency: Sewerage Department	***Budget 2004-05***	***2005-06***	***2006-07***	***2007-08***	***2008-09***	***2009-10***	***Un-Program***	***Grand Total***
	$950,338	*$244,426*	*$48,650*	*$826,000*	*$0*	*$0*	*$48,448*	*$2,117,862*

Project Status: M=project is maintaining current infrastructure; N=project will result in new development
Project Timeline: P=project is proposed; O=project is ongoing; U=project is one time and underway
Impact on Operating Budget: AF=additional funding is required; RF=results in reduction of funding; NOI=no operating impact
Impact on Staffing Budget: AS=additional staffing is required; RS=results in reduction of staffing; NSI=no staffing impact
Impact on Operating Budget $: annual additional funding or (reduction of funding) to operating budget

SEWAGE DISPOSAL SYSTEM HIGH PRIORITY PROJECTS (42)

The sewage disposal system capital improvement program schedules are presented in the Capital Agenda according to major program categories because individual projects would be too numerous to include separately. The most important projects for each program category are shown below.

High Priority Projects - Sewage Disposal System (42)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Primary Clarifiers 17 and 18 at WWTP	M	U	AF/NSI	PT	S/D	2005	1,600,000	5
Primary Clarifiers 17 and 18 at WWTP	M	U	AF/NSI	PT	C	2005	9,500,000	5
Replacement of Main Lift Pumps at Pump Station No. 1	M	U	NOI/NSI	PT	D	2005	326,000	5
Replacement of Main Lift Pumps at Pump Station No. 1	M	U	NOI/NSI	PT	C	2005	13,500,000	5
Replace Troughs & Weirs in Rectangular Primary Sedimentation Tanks 1 through 12	M	U	NOI/NSI	PT	DB	2005	1,045,000	5
Improvements to Rectangular Primary Clarifier Pipe Gallery	M	P	NOI/NSI	PT	S/D	2005	928,000	5
Improvements to Rectangular Primary Clarifier Pipe Gallery	M	P	NOI/NSI	PT	C	2006	5,165,000	5
Replace Primary Electrical Feed for Rectangular Tanks	M	P	NOI/NSI	PT	S/D	2005	60,000	5
Replace Primary Electrical Feed for Rectangular Tanks	M	P	NOI/NSI	PT	C	2005	2,400,000	5
Pump Station No. 2 Pumping Improvements	M	P	NOI/NSI	PT	D	2005	2,900,000	5
Pump Station No. 2 Pumping Improvements	M	P	NOI/NSI	PT	C	2008	16,000,000	5
New Troughs and Weirs for Primary Clarifiers	N	P	NOI/NSI	PT	S/D	2004	690,000	5
New Troughs and Weirs for Primary Clarifiers	N	P	NOI/NSI	PT	C	2007	6,000,000	5
Replacement of Impellers and Wear Rings for the Pump Station 1 & 2 at WWTP	M	P	NOI/NSI	PT	D/C	2005	4,507,000	5
						Primary Treatment - Subtotal	**$ 64,621,000**	

High Priority Projects - Sewage Disposal System (42)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Secondary Clarifier Improvements	M	U	NOI/NSI	ST	C	2005	9,870,000	5
Aeration Deck Conversion and Improvements	M	U	NOI/NSI	ST	D/C	2005	25,196,000	5
					Secondary Treatment - Subtotal		**$ 35,066,000**	
Incinerator Burner Train Improvement	M	U	NOI/NSI	SH	DB	2005	1,870,000	5
Rehabilitation of Complexes A & B	M	U	NOI/NSI	SH	D/C	2005	9,400,000	5
Central Off-Load Facility	N	U	NOI/NSI	SH	DB	2005	9,495,000	5
New Scum Concentration Facility & Related Improvements	N	U	NOI/NSI	SH	C	2005	154,000	5
New Scum Concentration Facility & Related Improvements	N	P	NOI/NSI	SH	C	2005	10,300,000	5
Rehabilitate Sludge Pump Stations 1 & 2	M	P	NOI/NSI	SH	D/C	2006	6,007,000	5
Rebuilding of Belt Filter Presses - Complex I	M	P	NOI/NSI	SH	D	2005	300,000	5
Rebuilding of Belt Filter Presses - Complex I	M	P	NOI/NSI	SH	C	2005	10,000,000	5
Complex I & II Incinerator Improvements	M	P	NOI/NSI	SH	S/D	2005	10,500,000	5
Complex I & II Incinerator Improvements	M	P	NOI/NSI	SH	C	2008	96,000,000	5
					Solids Handling - Subtotal		**$ 154,026,000**	
Detroit River Outfall Disinfection Facilities	N	U	AF/NSI	D	D	2005	3,320,000	5
					Disinfection - Subtotal		**$ 3,320,000**	

High Priority Projects - Sewage Disposal System (42)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Instrumentation, Control, & Computer System Program at WWTP	N	U	AF/NSI	GP	D/C	2005	51,337,000	5
Program Management for Wastewater Treatment Plant Rehabilitation & Upgrade	N	U	AF/NSI	GP	S/D	2005	20,400,000	5
As-needed Services for Concrete Testing, Geotechnical Soil Borings, Other Testing Services & Related Services	N	U	NOI/NSI	GP	D/C	2005	3,376,000	Various
Asbestos Abatement & Reduce/Remove Hazardous Materials	M	U	NOI/NSI	GP	D/C	2005	1,799,000	5
Facilities As-built Documentation Development & Maintenance Services	M	U	NOI/NSI	GP	D/C	2005	3,222,000	5
Renovation of Old Administration Building & Ragland Building at Operations Laboratory at WWTP	M	U	NOI/NSI	GP	D/C	2005	8,345,000	5
Power Enhancement - New Generator Systems	N	U	AF/NSI	GP	C	2005	2,500,000	5
Power Enhancement - Modifications to the Existing Generator Systems	M	U	NOI/NSI	GP	C	2005	2,500,000	5
Power Enhancement - Primary Service Conversion and PCB Disposal	N	U	NOI/NSI	GP	C	2005	3,800,000	5
Consultant Contract for Instrumentation & Control System Repair & Engineering Services at WWTP	N	U	NOI/NSI	GP	S/D/C	2005	4,800,000	5
Job Order Contracting: As-needed General Construction Services	N	U	NOI/NSI	GP	C	2006	3,050,000	5
Underground Electrical Duct Bank Repair - WWTP	M	P	NOI/NSI	GP	C	2005	4,400,000	5

High Priority Projects - Sewage Disposal System (42)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Upgrade Electrical Supply	M	P	AF/NSI	GP	S/D	2005	100,000	5
Upgrade Electrical Supply	M	P	AF/NSI	GP	C	2005	3,500,000	5
Improve Plant Security	M	P	AF/AS	GP	S/D	2005	100,000	5
Improve Plant Security	M	P	AF/AS	GP	C	2005	4,000,000	5
Roof & Pavement Asset Management Program & As-needed Engineering Services	M	P	NOI/NSI	GP	D	2005	2,500,000	5
Relocation of Wastewater Treatment Plant Analytical Lab	N	P	NOI/NSI	GP	C	2005	11,000,000	5
Plant-wide Fire Protection Improvements	M	P	NOI/NSI	GP	D/C	2005	2,409,000	5
Potable Water Backflow Prevention Improvements	M	P	NOI/NSI	GP	D/C	2005	1,587,000	5
Repair Damage at New Administration Building due to the Settlement of Floor Slab on the Grade	M	P	NOI/NSI	GP	S/D/C	2005	5,300,000	5
Asbestos Containing Material & Lead Based Paint Abatement for all DWSD Facilities	M	P	NOI/NSI	GP	C	2005	3,250,000	5
WWTP Work Environment Improvement	M	P	NOI/NSI	GP	S/D	2006	790,000	5
WWTP Work Environment Improvement	M	P	NOI/NSI	GP	C	2007	4,500,000	5
Department-wide Roof Replacement and Repair III	M	P	NOI/NSI	GP	D/C	2005	2,500,000	5
Plant-wide Fire Alarm Systems Upgrade and Integration	M	P	NOI/NSI	GP	S/D/C	2005	3,245,000	5
Replacement of CSO Basins Control Systems	N	P	NOI/NSI	GP	S/D/C	2006	2,258,000	5
Low Voltage Wiring Contract	M	P	NOI/NSI	GP	C	2005	3,000,000	5
Emergency Generators at the Wastewater Treatment Plant	N	P	AF/NSI	GP	DB	2005	16,100,000	5

High Priority Projects - Sewage Disposal System (42)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
					General Purpose - Subtotal		**$ 175,668,000**	
Primary Measuring Device Improvements - Group 3	N	U	NOI/NSI	SIS	C	2006	3,500,000	5
Clinton Township & City of Fraser Control Facilities: 15 Mile Rd & Hayes (NE & SE Corners), and 15 Mile Rd & Little Mack Avenue	N	P	AF/AS	SIS	C	2007	2,000,000	5
					Sewer Interceptor System - Subtota		**$ 5,500,000**	
Conner Creek & Fox Creek Stations Rehabilitation	M	U	NOI/NSI	CSS	C	2005	17,000,000	3
Long Term CSO Control Plan - Phase III	N	U	NOI/NSI	CSS	S/D	2005	12,100,000	Various
Conner Creek CSO Pilot Facility	N	U	AF/NSI	CSS	S/D	2005	2,075,000	3
Conner Creek CSO Pilot Facility	N	U	AF/NSI	CSS	C	2005	18,513,000	3
Baby Creek CSO Pilot Control Facility	N	U	AF/NSI	CSS	S/D	2005	568,000	
Baby Creek CSO Pilot Control Facility	N	U	AF/NSI	CSS	C	2005	60,000,000	
Installation of In-system Storage Devices	N	U	NOI/NSI	CSS	C	2005	4,386,000	Various
Overhaul of Major Electrical Power Distribution Equipment	M	U	NOI/NSI	CSS	C	2005	2,083,000	Various
Oakwood CSO Control Facility and Pump Station	N	U	NOI/NSI	CSS	S/D	2005	15,651,000	5
Bluehill Pumping Station Rehabilitation	M	U	NOI/NSI	CSS	D	2005	2,040,000	3
Bluehill Pumping Station Rehabilitation	M	U	NOI/NSI	CSS	C	2005	21,028,000	3
Inspection & In-place Rehabilitation of Existing Circular & Non-circular Sewer up to and larger than 15" in Diameter	M	U	NOI/NSI	CSS	C	2005	19,597,000	Various

High Priority Projects - Sewage Disposal System (42)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Additional Pump at Northeast Sewage Pumping Station	N	U	AF/NSI	CSS	S/D	2005	391,000	1
Additional Pump at Northeast Sewage Pumping Station	N	U	AF/NSI	CSS	C	2005	3,000,000	1
Security System Upgrade for Various Booster Pumping	M	U	AF/NSI	CSS	DB	2005	8,663,000	Various
Inspection & In-place Rehabilitation of Outfalls	M	U	NOI/NSI	CSS	DB	2005	15,483,000	Various
Fischer Pumping Station Rehabilitation	M	P	AF/NSI	CSS	S/D	2005	1,400,000	3
Fischer Pumping Station Rehabilitation	M	P	AF/NSI	CSS	C	2007	7,000,000	3
Woodmere Pumping Station Rehabilitation	M	U	AF/NSI	CSS	D	2005	2,100,000	5
Woodmere Pumping Station Rehabilitation	M	P	AF/NSI	CSS	C	2006	15,000,000	5
Upper Rouge River CSO Tunnel	N	P	AF/NSI	CSS	S/D	2005	110,000,000	Various
Upper Rouge River CSO Tunnel	N	P	AF/NSI	CSS	C	2008	620,000,000	Various
Outfall Improvements Allowance	M	O	NOI/NSI	CSS	D/C	2005	1,150,000	Various
Outfall Improvements Allowance	M	O	NOI/NSI	CSS	D/C	2006	4,150,000	Various
Outfall Improvements Allowance	M	O	NOI/NSI	CSS	D/C	2007	4,150,000	Various
Outfall Improvements Allowance	M	O	NOI/NSI	CSS	D/C	2008	3,000,000	Various
Consultant Services for Land Acquisition for Long Term CSO Control Program	N	U	NOI/NSI	CSS	S	2005	4,000,000	
Land Acquisition Allowance for Long Term CSO Control Program	N	U	NOI/NSI	CSS	C	2005	37,530,000	Various
Wet Weather Source Reduction Demonstration - LTCSO Plan	N	P	AF/NSI	CSS	S/D/C	2006	178,000,000	Various
CSO Control for Oakwood Pumping Station	N	P	AF/NSI	CSS	S/D	2008	88,000,000	5
Belle Isle Main Pumping Station & CSO Control Improvements	N	P	NOI/NSI	CSS	C	2005	12,500,000	3

High Priority Projects - Sewage Disposal System (42)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Clintondale Pumping Station Improvements	M	P	AF/NSI	CSS	D	2005	2,445,000	
Clintondale Pumping Station Improvements	M	P	AF/NSI	CSS	C	2007	15,000,000	
				Combined Sewer System - Subtotal			**$ 1,308,003,000**	
Palmer Woods Phase IV Improvements: Water System & Lateral Sewer Replacement	M	P	NOI/NSI	LSR	C	2005	8,000,000	10
Lateral Sewer Replacement Allowance	M	O	NOI/NSI	LSR	D/C	2005	9,110,000	Various
Lateral Sewer Replacement Allowance	M	O	NOI/NSI	LSR	D/C	2006	10,000,000	Various
Lateral Sewer Replacement Allowance	M	O	NOI/NSI	LSR	D/C	2007	10,000,000	Various
Lateral Sewer Replacement Allowance	M	O	NOI/NSI	LSR	D/C	2008	3,000,000	Various
Lateral Sewer Replacement - Oakwood District	M	U	NOI/NSI	LSR	S/D	2005	300,000	5
Lateral Sewer Replacement - Oakwood District	M	U	NOI/NSI	LSR	D/C	2006	10,000,000	Various
				Lateral Sewer Replacement - Subtotal			**$ 50,410,000**	
Information Systems Data System Improvement	N	P	NOI/NSI	PA	S/D/C	2005	2,000,000	
Information Systems Local Area Network Improvements	M	P	NOI/NSI	PA	S/D/C	2005	7,000,000	
PBX & Telecommunications Systems Improvement & Replacement	M	P	NOI/NSI	PA	S/D/C	2006	3,000,000	
Department-wide Enterprise Application Integration (EAI)	N	P	NOI/NSI	PA	S/D/C	2005	3,250,000	
Regional 800 MHz Trunked Radio System	N	U	AF/NSI	PA	D/C	2005	18,650,000	
Information Systems Evergreening	M	O	NOI/NSI	PA	C	2005	2,250,000	
Expanded GIS Services and Implementation	M	U	AF/AS	PA	D	2005	4,962,000	

High Priority Projects - Sewage Disposal System (42)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Department-wide Electronic Document Management System	N	U	NOI/NSI	PA	S/D/C	2006	4,500,000	
Secure Connection for Business & Process Control Networks and Related Systems Security Improvements	M	U	NOI/NSI	PA	S/D/C	2005	2,250,000	
Information Systems Wide Area Infrastructure Improvements	N	U	NOI/NSI	PA	S/D/C	2006	13,100,000	
Water Meter Replacement & Automatic Meter Reading Equipment Installation	N	U	NOI/NSI	PA	D/C	2006	97,500,000	Various
						Planning & Administration - Subtotal	**$ 158,462,000**	
						All Categories - Total	**$ 1,955,076,000**	

Legend

*Project Status: M = project is maintaining current infrastructure; N = project will result in new development
**Project Time Line: P = project is proposed; O = project is ongoing; U = project is one time only and is underway
***Impact on Operating Budget: AF = additional funding required; RF = results in reduction of funding; NO I= no operating impact
***Impact on Staffing Budget: AS = additional staffing required; RS = results in reduction of staffing; NSI = no staffing impact
****Project Phase: S = study; D = design; C = construction